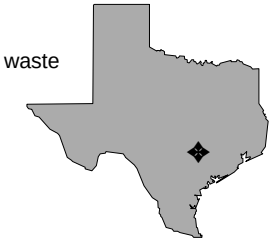
Size: 3,216 acres
Mission: Housed the 67th Reconnaissance Wing, 12th Air Force Headquarters, 12th Tactical Intelligence Squadron, 712th Air Support Operations Center, 10th Air Force Reserve, and 924th Fighter Group
HRS Score: NA
IAG Status: None
Contaminants: VOCs, pesticides, petroleum hydrocarbons, metals, and low-level radioactive waste
Media Affected: Groundwater and soil
Funding to Date: $45.3 million
Estimated Cost to Completion (Completion Year): $10.5 (FY1998)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1998



Austin, Texas

Restoration Background

Bergstrom Air Force Base began operations in 1942, maintaining troop carrier units. In July 1991, the BRAC Commission recommended closure of the installation and retirement of the assigned RF-4 aircraft. The installation closed in late FY93, and the land reuse authority began to convert Bergstrom into a civilian airport.

Environmental studies since FY83 have identified 30 CERCLA and 451 RCRA sites. Site types include underground storage tanks (UST), landfills, fuel spill areas, a pesticide evaporation pit, firing ranges, a sludge weathering pit, aboveground storage tanks, a fire training area, and a radioactive waste disposal area. Contaminants include petroleum hydrocarbons, metals, volatile organic compounds (VOC), and pesticides, which have been released into groundwater and soil. Interim Remedial Actions include the removal of 106 USTs, the removal of contaminated soil and low-level radioactive wastes, and the closure of 45 aboveground storage tanks.

An Environmental Baseline Survey (EBS) was completed in FY93 and updated in FY95. It identified 2,919 acres as CERFA-clean, but regulatory concurrence on this designation has not been received.

A BRAC cleanup team (BCT) and a restoration advisory board (RAB) were formed in FY94. In addition, the Air Force Base Conversion Agency signed a Memorandum of Understanding governing site management and site characterization with the state regulatory agency, EPA, and the Air Force Center for Environmental Excellence.

In FY95, the installation established a strong partnership with the city of Austin and other stakeholders to accelerate the restoration process and redevelop the property. The city of Austin took the initiative in forming an executive team dedicated to resolving differences among the stakeholders. In FY96, RAB meetings were held to discuss ways to address a trichloroethene (TCE) plume that was migrating off base and to address completion of other site cleanup activities before construction of the Austin-Bergstrom International Airport begins.

Remedial Actions (RA) included removal of remaining aboveground and underground storage tanks and oil-water separators. Soil vapor extraction and air sparging systems were installed to accelerate cleanup of groundwater plumes at a group of sites, and as a result, cleanup finished ahead of schedule. Of the 481 Installation Restoration Programs and RCRA environmental sites, 344 were designated for no further action. The installation has forwarded closure documents recommending no further action for 105 of the remaining 137 sites.

FY97 Restoration Progress

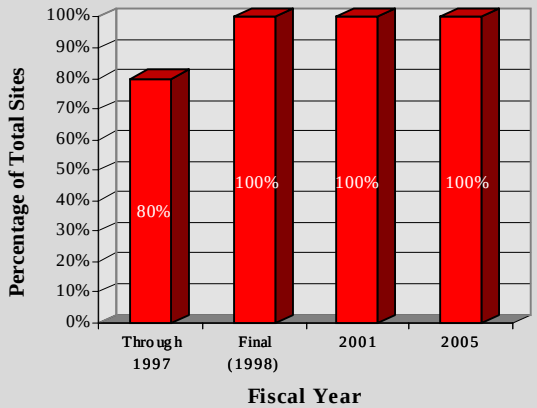
The installation completed 37 Removal Actions; cleanup of IRP Sites SS-08, SS-10, and SD17; and the latest EBS. In addition, the installation continued to work with the city of Austin, the Texas Natural Resource Conservation Commission (TNRCC), EPA, and the RAB to close out all remaining sites. The RAB was disbanded by the community members because of the successful remediation efforts at Bergstrom. Long-term monitoring (LTM) began and will continue until regulatory agencies determine that cleanup has been completed. The installation completed the air injection sparging and soil venting project to expedite cleanup. Actions for several sites under investigation were agreed upon by the TNRCC, EPA, and the Air Force through cooperative efforts. BRAC closure team meetings led to resolution of difficult remediation and investigation issues.

Some activities scheduled for completion in FY97 were delayed because of inclement weather and because of TNRCC review of projects for no-further-action determination.

Plan of Action

- Conduct and finalize remaining RAs and put in place the last remedy in FY98
- Continue LTM of TCE plume and landfills in FY98
- Establish Regional Operating Location to take over programs at Carswell AFB, Texas; England AFB, Louisiana; and Williams AFB, Arizona, in FY98
- Continue working with the city of Austin, the TNRCC, and EPA to close out the remaining 137 sites in FY98

Sites Achieving RIP or RC Per Fiscal Year



Brunswick Naval Air Station — NPL

Size: 7,259 acres
Mission: Provide facilities, services, materials, and aircraft for submarine warfare
HRS Score: 43.38; placed on NPL in July 1987
IAG Status: Federal Facility Agreement signed in 1989; revised in 1990 to include the state of Maine
Contaminants: DDT, PCBs, PAHs, VOCs, and metals
Media Affected: Groundwater and soil
Funding to Date: $44.1 million
Estimated Cost to Completion (Completion Year): $14.6 million (FY2016)
Final Remedy in Place or Response Complete Date: FY2002

Brunswick, Maine

Restoration Background

Since FY83, environmental studies have identified 19 sites at this installation. Site types include landfills, a groundwater plume contaminated with volatile organic compounds (VOC), and two underground storage tank (UST) sites. Activities that contributed to the contamination included intermediate aircraft maintenance, material support for maintenance, aircraft fueling services, storage and disposal of ordnance, and all-weather air station operations. On-site landfills were used to dispose of wastewater treatment sludge, paints, solvents, medical supplies, pesticides, petroleum products, and photographic and industrial chemicals. The installation was listed on the National Priorities List (NPL) in July 1987 because Sites 1, 2, 3, 4, 7, 8, and 9 were used for the storage or disposal of hazardous waste.

The contaminated groundwater plume associated with Sites 4, 11, and 13 (the Eastern Groundwater Plume) is believed to originate from a former fire training area; three USTs formerly used to store petroleum products and waste solvents; and a waste pit used to dispose of transformer oils, battery acids, caustics, VOCs, solvents, and paint thinners. Site Inspections were completed for 12 sites in FY85 and for 4 more between FY91 and FY95. Remedial Investigations and Feasibility Studies (RI/FS) have been completed for 14 of the 17 active sites. Remedial Design (RD) for 10 sites was completed in FY95, and one Remedial Action (RA) was completed in FY95. A Record of Decision (ROD) was signed in FY92 for an Interim Remedial Action (IRA) to address the Eastern Groundwater Plume. The IRA was completed in FY94, and operation and maintenance (O&M) of the groundwater treatment plant and extraction wells began in FY94. O&M is ongoing under the IRA.

In FY93, many USTs were removed or replaced, and work on RDs began. In FY94, the installation removed USTs from the Fuel Farm UST site, completed pilot-scale tests at another site, and began full-scale operation of an air sparging system to remediate petroleum hydro-carbon contamination in soil.

During FY95, the installation completed a Removal Action at the former pesticide shop site where DDT had been detected in soil and unfiltered groundwater samples. Long-term monitoring (LTM) of groundwater will be conducted at the site.

In FY87, the installation established an administrative record and an information repository. In FY88, the community relations plan (CRP) was completed. The technical review committee was formed in FY88 and was converted to a restoration advisory board (RAB) in FY95. The RAB has 24 members and meets quarterly. The Navy meets with the RAB to expedite decision-making and site management. Brunswick Area Citizens for a Safe Environment, a community group, performs public oversight of the Navy's remediation efforts. The installation has held public meetings and prepared fact sheets since FY90.

In FY96, the installation constructed landfill caps at Sites 1 and 3 and developed final RAs at five sites. Three of these sites were designated as Response Complete in FY96.

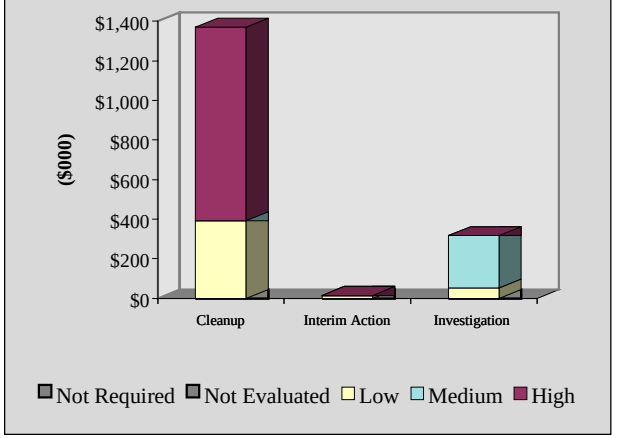
FY97 Restoration Progress

The treatment plant operations for the Eastern Groundwater Plume sites were monitored to ensure that the Interim Action was meeting its intended goals. This data review slightly delayed the final ROD, but the ROD for these sites was prepared in FY97. Changes were also recommended for the air sparging system used to remediate petroleum hydrocarbon contamination in soil at the Fuel Farm UST site. The recommendation was to focus the system on specific areas of the Fuel Farm.

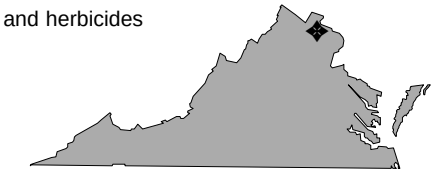
Plan of Action

- Sign final ROD for sites 4, 11, and 13 in FY98
- Complete an LTM plan, sign a final ROD, and implement LTM at Site 2 in FY98
- Expand the air sparging system for UST 2 in FY98
- Begin RD at seven sites in FY98
- Update the CRP in FY98

FY98 Funding by Phase and Relative Risk



Size: 164 acres
Mission: Provided logistical and administrative support to the Military District of Washington and tenant activities
HRS Score: NA
IAG Status: None
Contaminants: VOCs, heavy metals, petroleum products, PCBs, pesticides, and herbicides
Media Affected: Groundwater and soil
Funding to Date: $5.7 million
Estimated Cost to Completion (Completion Year): $0.02 million (FY2002)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1996



Alexandria, Virginia

Restoration Background

In December 1988, the BRAC Commission recommended closure of Cameron Station and relocation of its major logistical and transportation activities to Fort Belvoir, Virginia. After closure, the entire property will be returned to the community and made available for redevelopment.

In FY90, Remedial Investigation and Feasibility Study (RI/FS) activities began at the installation. Sites identified during earlier investigations include underground storage tanks (UST), polychlorinated biphenyl (PCB) and pesticide storage areas, a landfill, and burn pits. After completion of the Phase I activities, the sites were grouped into 12 operable units (OU). Petroleum hydrocarbons are the primary contaminants affecting groundwater.

Interim Actions conducted to date include removal of USTs, removal of electrical transformers containing PCBs, cleanup of the installationwide storm sewer, and removal of asbestos. RI/FS activities were completed at the installation in FY93. In FY94, Remedial Actions (RA) were completed for six OUs.

The installation formed a BRAC cleanup team (BCT) in FY93. The BCT expedited the resolution of issues, avoiding additional costs and schedule delays. To assist DoD in the base closure process, the Virginia Department of Environmental Quality (VDEQ) set up a special team to advise the installation on the restoration process. This team includes a BCT representative who acts as a contact for addressing issues related to the installation and expedites the document review process. This inclusive approach improved communication with the state.

In FY94, the installation commander formed a restoration advisory board (RAB), which worked closely with the city of Alexandria. The installation developed a property-reuse plan to guide risk assessments and cleanup actions. The plan also helped reduce conflicts among proposed and expected uses. Regulatory agencies approved the installation's designations of CERFA-clean acreage.

In FY95, the installation and VDEQ monitored a benzene-dichloroethane plume located on the western side of the installation. Ultimately, a decision was made that the contamination originated off-post and thus required no further action by the Army. An amendment to the decision document also required no further action for the OU3 landfill, along with an agreement to regularly monitor the landfill. VDEQ approved a water discharge permit for OU5. The installation completed RAs for OUs 1 (PCBs), 4 (pesticides), and 6 (acid pits) and constructed the soil vapor groundwater extraction and treatment system for OU8 (gas station). The installation also awarded a contract to address USTs at OU12.

Also in FY95, the installation completed a comprehensive strategy to identify and implement appropriate cleanup actions. This strategy considers regulatory requirements, disposal guidelines, and the reuse goals of the local community. The BCT worked with the Cameron Station Environmental Restoration Project Team to expedite implementation of those cleanup actions by accelerating schedules, conducting concurrent Remedial Design phases, and implementing other innovative actions to address cleanup and hasten property transfer. The installation closed on schedule in FY95.

In FY96, the groundwater extraction and treatment system at OU5 continued to operate. In addition, the installation completed an Environmental Baseline Survey. The installation also completed a project for removing the remaining USTs and prepared findings of suitability to transfer for two parcels, both of which have been transferred.

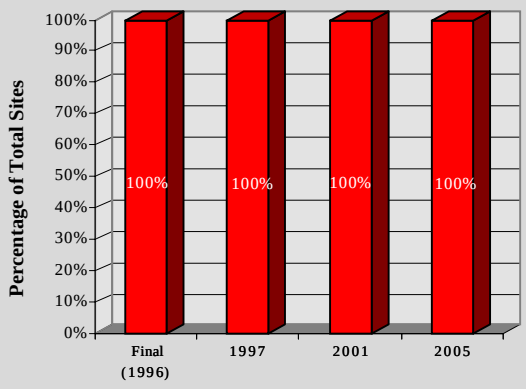
FY97 Restoration Progress

The installation continued RAs at the gas station site and at the trichloroethene-contaminated area of OU5. It also continued the 5-year monitoring program at OU3. Relative Risk Site Evaluations were completed at all sites. The installation also implemented the property-reuse plan. A transfer of parcels to private developers and the city of Alexandria was completed. The Army completed the cleanup of a leaking UST at Building 2, part of OU8, by removing the contaminated soil. A total of 36.27 acres was proposed and approved as CERFA-uncontaminated acreage in FY97.

Plan of Action

- Conduct BCT meetings to discuss progress and plan for possible closure of OU5 in FY98
- Completely sample gas station site and compare results to closure endpoints in FY98
- Continue 5-year monitoring program at OU3

Sites Achieving RIP or RC Per Fiscal Year



Size: 3,020 acres
Mission: Conducted training of Active/Reserve DoD personnel
HRS Score: NA
IAG Status: None
Contaminants: Petroleum/oil/lubricants and solvents
Media Affected: Soil
Funding to Date: $1.2 million
Estimated Cost to Completion (Completion Year): $3.4 million (FY2005)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2005

Vancouver, Washington

Restoration Background

In July 1995, the BRAC Commission recommended closure of Camp Bonneville.

The Army identified 14 areas of concern (AOC): a leaking underground storage tank (UST) site, three landfills, a burn site, a drum burial site, a paint and solvent burial site, two wash racks, a maintenance pit, grease pits, a pesticide storage facility, and an old sewage lagoon site. The Army initiated site investigation work at the leaking 500-gallon underground petroleum storage tank.

In FY96, the Army awarded a contract for the removal of petroleum-contaminated soil at the UST site, submitted a draft Environmental Baseline Survey (EBS) for regulatory review, and completed a survey for lead-based paint and metals in soil.

FY97 Restoration Progress

The installation completed the EBS and the report on an unexploded ordnance (UXO) archive search. It also initiated an asbestos survey and submitted the report on lead-based paint and metals in soil to the regulators for approval. In addition, 2,986 acres are awaiting regulatory approval as uncontaminated.

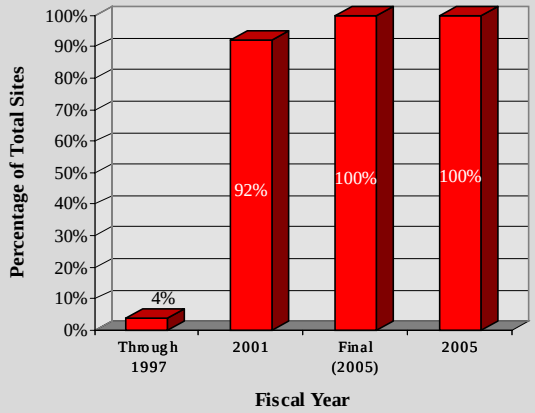
The installation's restoration advisory board became aware of, and involved in, UXO issues. An installation BRAC cleanup team was involved in document review, decision-making on site investigations, interface with the Local Reuse Authority, project prioritization, and review of applicable laws and regulations. The latest version of the BRAC Cleanup Plan was completed.

Several AOC investigations scheduled for completion in FY97 were delayed because precedence was given to initiating investigations of AOCs newly identified in the EBS.

Plan of Action

- Initiate investigations of remaining AOCs in FY98
- Foster partnership with the Washington State Department of Ecology and EPA Region 10 in FY98
- In FY98, determine no-further-action sites and necessary future studies and Interim Actions
- Propose more CERFA-uncontaminated acreage in FY98
- Complete the 24 remaining Relative Risk Site Evaluations by FY99

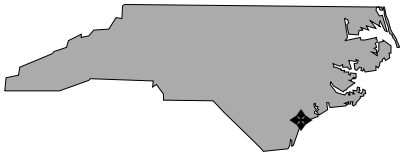
Sites Achieving RIP or RC Per Fiscal Year



Camp Lejeune Marine Corps Base

NPL

Size: 151,000 acres
Mission: Provide housing, training facilities, logistical support, and administrative supplies for Fleet Marine Force units and other assigned units; conduct specialized schools and other training as directed
HRS Score: 36.84; placed on NPL in October 1989
IAG Status: Federal Facility Agreement signed in February 1991
Contaminants: Battery acid, fuels and used oils, paints and thinners, PCBs, pesticides, solvents, and metals
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $63.8 million
Estimated Cost to Completion (Completion Year): $161.5 million (FY2098)
Final Remedy in Place or Response Complete Date: FY2009



Jacksonville, North Carolina

Restoration Background

Investigations at this installation have identified 176 sites, including 86 leaking underground storage tank (UST) sites. Contaminants released from past storage and disposal operations at the installation have migrated to a shallow aquifer, several surface water bodies, and a deep aquifer that is used for drinking water.

In 1991, a Federal Facility Agreement under CERCLA was signed. Since then, 18 operable units (OU), comprising 42 of the 91 installation restoration (IR) sites, have been identified as requiring additional investigation or remediation.

Since FY83, the installation has completed an Initial Assessment Study for 72 sites and Site Inspections (SI) for 8 sites, conducted 26 Remedial Investigations and Feasibility Studies (RI/FS), signed Records of Decision (ROD) for 19 sites, and completed Remedial Design (RD) for 4 sites. The installation also completed an Interim Remedial Action (IRA) for two sites and four Time-Critical Removal Actions (TCRA).

The installation formed a technical review committee in FY88 and converted it to a restoration advisory board (RAB) in FY95. The installation completed a community relations plan in FY90 and established an information repository and an administrative record in FY91.

Since FY88, the installation's UST program has completed site assessments (SA) at 76 sites and corrective action plans (CAP) at 34. Remediation systems have been designed and implemented at 23 sites, and active remediation systems are in place at 16. The installation has requested closure and no further action at 26 sites. Eleven UST sites have been passed to the installation's IR program for further action.

FY97 Restoration Progress

An RI Phase I investigation was completed at 6 sites, and RIs were completed at 12 sites. A groundwater modeling study was completed; air sparging and in-well aeration Treatability Studies (TS) were completed for two sites; a surfactant-enhanced aquifer remediation TS was initiated; and a TCRA for polychlorinated biphenyl (PCB)-contaminated soil was initiated. Long-term monitoring (LTM) was performed at nine sites, and long-term operations (LTO) were conducted at three sites. Final Record of Decisions (RODs) were signed for four sites. The final RODs for OU6 and OU9 were delayed because of the need for additional sampling and for a groundwater modeling study, respectively.

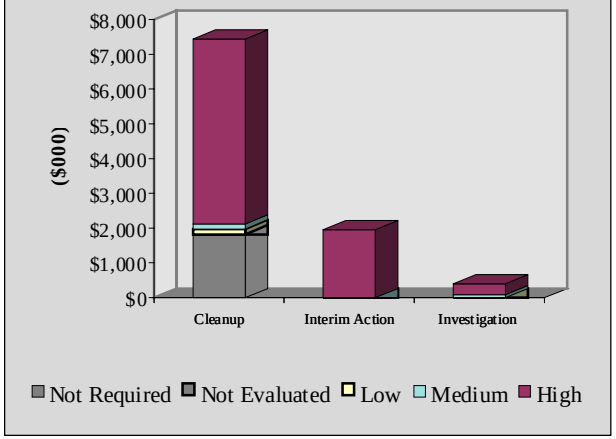
The SA phase was completed at five UST sites. One was determined to require no further action. The DES was completed at four UST sites, and the installation management plan was completed at three others. Corrective action is in progress at 12 UST sites.

Regulatory review of documents has been expedited through regular partnering meetings. RAB members are provided with program status updates, informed of publication of technical documents, and encouraged to ask questions about any aspects of the program.

Plan of Action

- Continue LTO at three sites in FY98
- Continue LTM at eight sites in FY98
- Initiate LTM at Site 3 in FY98
- After demonstration of no remaining contaminants of concern, discontinue LTM at Site 24 in FY98
- Initiate natural attenuation program at five sites in FY98
- Complete TS at two sites and Remedial Action (RA) for Site 3 in FY98
- Complete TCRA for three sites in FY98
- Complete IRA for Site 35 and Engineering Evaluation and Cost Analysis for Site 88 in FY98
- Complete RD for three sites in FY98
- Sign final ROD for 12 sites in FY98
- Complete response at UST 17 and SA at UST 65 in FY98
- Complete CAPs at six USTs in FY98
- Complete additional design work at UST 13 in FY98
- Complete IRA at USTs 10 and 33 in FY98
- Designate three USTs as requiring no further action in FY98
- Employ innovative technology at UST 78 in FY98
- Complete DES at USTs 9 and 50 and initiate it at UST 62 in FY98
- Continue operation and maintenance at 22 USTs in FY98

FY98 Funding by Phase and Relative Risk



Camp Pendleton Marine Corps Base NPL

Size: 125,000 acres
Mission: Provide housing, training facilities, logistic support, and administrative support to Fleet Marine Force Units
HRS Score: 33.79; placed on NPL in November 1989
IAG Status: Federal Facility Agreement signed in October 1990
Contaminants: Pesticides, herbicides, heavy metals, PCBs, and VOCs
Media Affected: Groundwater and soil
Funding to Date: $86.1 million
Estimated Cost to Completion (Completion Year): $109.4 million (FY2010)
Final Remedy in Place or Response Complete Date: FY2010

Oceanside, California

Restoration Background

Environmental contamination at Camp Pendleton Marine Corps Base resulted from maintenance of vehicles and equipment used to fulfill the installation's mission and from such support facilities as gas stations, hospitals, laundries, pest control services, and hobby shops. Wastes generated by these operations were disposed of in various locations throughout the installation. Site types at the installation include landfills, surface impoundments, pesticide storage areas, fire training areas, vehicle maintenance areas, and underground storage tanks (UST). The installation was placed on the National Priorities List (NPL) after the herbicide 2,4,5-TP (Silvex) was detected in two groundwater wells used to supply drinking water.

Of the 200 sites identified at the installation, 61 are CERCLA sites, 109 are RCRA sites, and 30 are UST program sites. The installation has completed Remedial Investigations and Feasibility Studies (RI/FS) for 27 CERCLA sites. RI/FSs for the remaining 34 sites are under way. The installation has completed Remedial Designs (RD) for three sites. A Removal Action (the final cleanup action) at one of those sites was completed in FY95. The Removal Action for the remaining two sites was delayed because of funding cutbacks and a change in treatment standards.

In FY95, the installation conducted an additional Removal Action at two surface impoundment sites to remove liquids, sludge, and liners. The installation also began Interim Remedial Actions (IRA) at UST Site 1 (which includes 30 USTs located throughout the installation) to remove soil and initiate bioremediation. Soil vapor extraction was initiated at nine other UST sites, and a draft Interim Record of Decision (ROD) was completed for four sites (Operable Unit [OU] 1).

The installation has developed partnerships with state and federal regulatory agencies. To facilitate review of documents, cleanup decisions are made in advance through discussions with these agencies. The installation formed a technical review committee (TRC) and prepared a community relations plan in FY92. Although the TRC is active and members of the community participate, interest has been insufficient to support formation of a restoration advisory board.

During FY96, the installation completed RI/FSs for 21 sites and an FS for 13 sites and signed the final ROD for no further action at OU1. All parties to the Federal Facility Agreement (FFA) signed the final ROD. The FFA project team met several times to discuss the restoration program. The team shifted the program's focus from a traditional RI/FS approach to cleanup. It also identified five Removal Actions, closed six sites, accelerated the remediation schedule by 2 years, and decreased the investigation budget by $3 million for the fiscal year.

The installation completed an Engineering Evaluation and Cost Analysis (EE/CA) and Action Memorandum for the pest control washrack and scrap yard sites and for Site 7 (the Box Canyon Landfill). The installation initiated IRAs for three sites, completed the initial site characterization at 25 UST sites, and completed the investigation phase and prepared a corrective action plan for four UST sites.

FY97 Restoration Progress

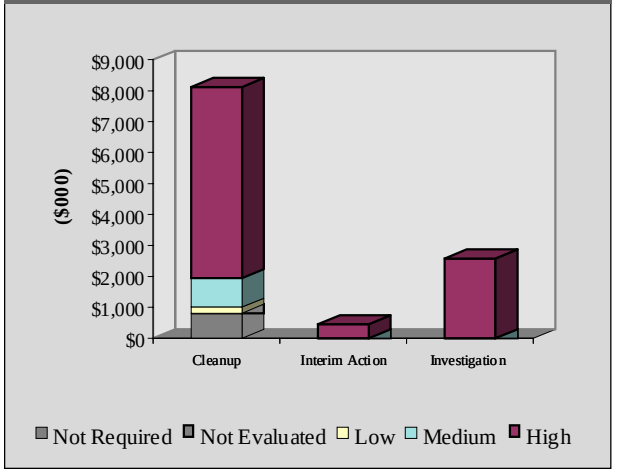
RIs were completed at 34 sites and a ROD signed for 13 sites. IRAs were completed at the pest control washrack and scrap yard sites. EE/CAs for five sites and Removal Actions for five sites were completed ahead of schedule. Soil stabilization aided in cleanup of pesticide-contaminated soil. The use of innovative technologies such as this led to the completion of cleanup at two sites.

The FFA team used concurrent document review to expedite the review process. This, coupled with extensive teamwork, team field involvement, and intense issue-focused meetings, allowed the FFA to complete difficult Removal Actions, resolve problems, and make real-time decisions.

Plan of Action

- Complete FSs at the remaining 34 sites in FY98
- Complete IRAs in FY98 at the Box Canyon Landfill
- Sign ROD for all remaining sites in FY98
- Begin implementation of a landfill cap in FY98

FY98 Funding by Phase and Relative Risk



Size: 2,777 acres
Mission: Train tanker crews and service KC-135 stratotanker
HRS Score: 37.93; placed on NPL in July 1987
IAG Status: IAG signed in 1989
Contaminants: Spent solvents, PCBs, petroleum/oil/lubricants, pesticides, cyanide, and cadmium
Media Affected: Groundwater and soil
Funding to Date: $103.7 million
Estimated Cost to Completion (Completion Year): $92.9 million (FY2029)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2001

Merced, California

Restoration Background

In July 1991, the BRAC Commission recommended closure of Castle Air Force Base. The installation was closed on September 30, 1995.

Preliminary Assessment and Site Inspection activities have identified landfills, underground storage tanks (UST), discharge areas, chemical disposal pits, fire training areas, fuel spill areas, and six polychlorinated biphenyl (PCB) spill areas at the installation. Groundwater and soil contaminants included spent solvents, such as trichloroethene (TCE), and petroleum/oil/lubricants (POL), pesticides, cyanide, and cadmium.

Interim Actions conducted at the six PCB-contaminated spill areas consisted of excavating contaminated soil and disposing of that soil off site. Other Interim Actions consisted of installing potable water supply wells and groundwater filtration systems to remove TCE from the groundwater and removing 30 USTs. In FY86, Remedial Investigation and Feasibility Study (RI/FS) activities were initiated, and sites were grouped into four operable units (OU). In FY91, the installation submitted Records of Decision (ROD) for OU1 and OU2.

In FY93, additional areas of concern (AOC) were identified through aerial photographs, a RCRA Facility Assessment, and a contaminant source assessment. AOCs were incorporated into the Source Control OU. The installation completed Remedial Design (RD) activities at OU1 and initiated a Remedial Action (RA), which involved constructing a groundwater extraction and treatment system, capping inactive production wells, and removing abandoned USTs. The draft RI/FS Report for the basewide OU was submitted in FY94.

In FY95, the installation began operating soil vapor extraction (SVE) systems at two fuel spill areas. A pump-and-treat system also was implemented as part of the Removal Action for OU2. The installation continued RI/FS efforts for the Source Control OU (SCOU), which includes seven landfills that have been selected tentatively for application of presumptive remedies.

The installation identified 216 acres as CERFA-clean, completed its Environmental Baseline Survey, and received concurrence on the CERFA-clean acreage.

A BRAC cleanup team (BCT) and a restoration advisory board (RAB) have been formed. Monthly RAB meetings provide a forum for dialogue with stakeholders. In FY95, the installation held two partnering sessions with regulatory agencies to examine ways of streamlining the management process.

In FY96, a Relative Risk Site Evaluation fact sheet was developed and distributed to RAB members. A report was completed that sets priorities among sites and includes comments from the BCT. The installation also obtained the approval of regulatory agencies for a presumptive remedy approach to landfills. Part 1 of the RI/FS Report was completed in FY96. The installation removed 69 USTs and 16 oil-water separators. RD/RA activities continued, including installation of two additional SVE systems and the capping of Fire Training Area 1. The pump-and-treat system at OU1 was expanded.

FY97 Restoration Progress

The installation completed construction of the pump-and-treat system at OU2. The use of geoprobe technology accelerated fieldwork efforts. Fast-track cleanup helped expedite document review and resolve issues with regulatory agencies. Abbreviated Air Force review schedules also helped expedite site characterization. In FY97, the RAB met monthly and provided community input.

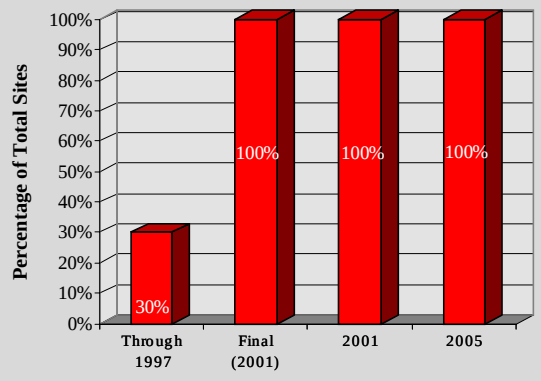
The BCT completed the SCOU RI/FS and the CB Part I ROD, completed a draft final RD/RA landfill work plan, provided the SCOU Proposed Plan for public comment, and placed four more sites in Removal Action status.

Some activities scheduled for completion in FY97 were delayed because of contractor delays. Control mechanisms for a groundwater contaminant plume are in place and operating, but the plume has been difficult to define. Lack of funds also caused delays.

Plan of Action

- Update the BRAC Cleanup Plan in FY98
- Determine the effect of municipal wells on plumes and develop control mechanisms in FY98
- Clean contaminated sediment from storm drains in FY98
- Repair the sanitary sewer system in FY98
- Initiate variable oversight training in FY98
- Cap and monitor for landfills in FY98
- Use intrinsic remediation for POL sites in FY98
- Continue SCOU ROD and RD/RA work plan in FY98
- Continue CB Part II RI/FS, Proposed Plan, and ROD in FY98
- Continue RD/RA activities in FY98 and FY99
- Achieve Remedial Action in Place status by the end of FY00

Sites Achieving RIP or RC Per Fiscal Year



Size: 31,366 acres
Mission: Provide facilities, services, and material support for maintenance of Naval weapons and aircraft
HRS Score: 31.99; placed on NPL in November 1989
IAG Status: Federal Facility Agreement signed in November 1990
Contaminants: Waste fuel oil, solvents, heavy metals, halogenated aliphatics, phthalate esters, SVOCs, and lead
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $20.9 million
Estimated Cost to Completion (Completion Year): $30.0 million (FY2003)
Final Remedy in Place or Response Complete Date for BRAC Sites : FY2002

Jacksonville, Florida

Restoration Background

In July 1993, the BRAC Commission recommended the FY99 closure of this installation and relocation of its aircraft, personnel, and equipment to other stations.

Since FY84, environmental investigations have identified 18 CERCLA sites; 6 major underground storage tank (UST) sites; 250 BRAC grey sites; 235 USTs to be removed, including contamination assessment; and 1 RCRA site. Typical operations that caused contamination at the installation include equipment maintenance, storage and disposal of fuel and oil, fire training, and training on target ranges.

Site Inspections were completed for all 18 CERCLA sites in FY88, and Remedial Investigation and Feasibility Study (RI/FS) activities began in FY93. The installation grouped 12 of the sites in seven operable units (OU), based on the type of waste disposed of and/or the profile of the suspected contaminants. The six remaining CERCLA sites are being investigated and remediated individually.

A BRAC cleanup team was formed in FY94. The installation's technical review committee was converted to a restoration advisory board in FY94.

A finding of suitability to lease (FOSL) was signed for 60 acres in the Yellow Water Weapons Area. The installation also completed soil removal at the North Tank Fuel Farm and installed a bioslurper during FY96.

FY97 Restoration Progress

The RI for Site 10 was completed, and the Record of Decision (ROD) was signed by the Navy. The final RI/FS (including a Baseline Risk Assessment) for Sites 7 and 8; the final RI for Sites 11, 14, and 15; and the final FS for Site 3 were completed. Removal of Day Tank 2, the Jet Engine Test Cell soil, the 103rd Street Pipeline, Site 18 unexploded ordnance (UXO), and 29 miscellaneous tanks was completed early. Other restoration activities at the installation include multiple site screenings, completion of the North Fuel Farm, the Day Tank 1 Remedial Action Plans (RAP), and the Baseline Risk Assessment; and signing of a no further action ROD for Site 10. In addition, the Remedial Design (RD) was completed for Site 17, and corrective actions for three UST sites were completed. Regulatory agencies approved 17,005 acres as CERFA-uncontaminated.

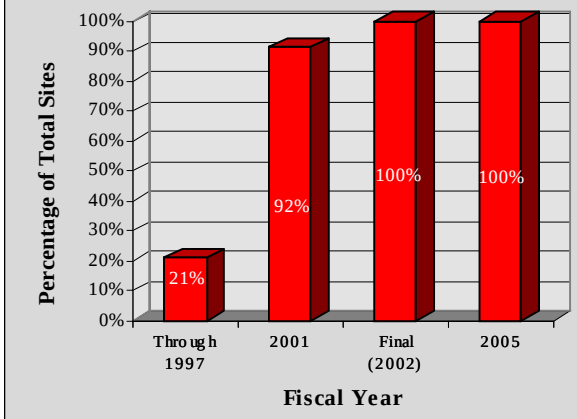
Site management improvements include two databases developed to track BRAC grey sites and action items, a decision document to formalize the implementation of Data Quality Objectives and developing cleanup proposals through small subcommittees, thus decreasing the time that the team as a whole spent on one issue. Also, the installation developed and implemented metrics to measure cleanup progress and developed a general information report to consolidate RI/FS information. Lake Fretwell was removed from the State Health Advisory List.

The high cost of some actions scheduled for FY97 necessitated their delay and reevaluation. The Site 5 Interim Remedial Action (IRA) was terminated because of its high operation and maintenance costs, and an alternative Remedial Action was developed. The installation postponed RI/FS goals at several sites in order to seek and study cheaper, quicker, and smarter cleanup methods.

Plan of Action

- Complete RD for three sites; RODs for six sites; IRA for Site 5; RI/FS for Site 4; remediation of all grey sites; and IRAs, designs, and corrective action plans for three UST sites in FY98
- In FY98, submit to team no-further-action reports for Sites 4, 9, 12, 18, and 19; FS for two sites; RI for two sites; Day Tank 2 contamination assessment report and RAP; and screening data for six sites
- Submit and implement groundwater RD for three sites in FY98
- Remove contaminated soil from two sites in FY98
- Begin RI/FS at Site 6 in FY98
- Conduct 20 Removal Actions at various BRAC grey sites in FY98
- Prepare approximately 20 findings of suitability to transfer and FOSLs in FY98
- Implement soil and groundwater remediation at South Fuel Farm in FY98
- Initiate groundwater remediation at Jet Engine Test Cell and Tank 199 in FY98
- Perform contamination assessment and develop report for 85 BRAC grey tank sites in FY98

Sites Achieving RIP or RC Per Fiscal Year



Chanute Air Force Base

BRAC 1988

Size: 2,125 acres
Mission: Served as technical training center
HRS Score: NA
IAG Status: IAG signed in September 1990
Contaminants: Petroleum/oil/lubricants, VOCs, chlorinated solvents, and metals
Media Affected: Groundwater, soil, and sediment
Funding to Date: $40.2 million
Estimated Cost to Completion (Completion Year): $41.8 million (FY2001)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2001

Rantoul, Illinois

Restoration Background

Chanute Air Force Base was one of five Air Training Command Technical Training Centers providing specialized training for officers, airmen, and civilian employees of the Air Force and for other DoD agencies. In December 1988, the installation was recommended for closure. A Record of Decision for reuse of the base was signed in FY91, and closure occurred in September 1993. The majority of the installation has been licensed to the village of Rantoul for use as an airport.

Environmental studies conducted between FY82 and FY92 identified 69 sites at the facility, including landfills, 4 of which cover a total of approximately 71 acres, and a fire training area that covers approximately 9 acres. Other site types include oil-water separators, additional fire training areas, a petroleum sludge disposal pit, jet engine test cells, and underground storage tanks (UST). The primary contaminants are petroleum/oil/lubricants (POL), which are contaminating the upper glacial tills and shallow groundwater. Other contaminants are volatile organic coumpounds (VOC) and trichloroethene (TCE).

Interim Actions at the base have included removal of USTs, pipelines, and contaminated soil at all UST sites; removal of sludge and contaminated soil at a sludge pit; and removal of oil-water separators. In FY95, the installation completed a Treatability Study at 14 former UST sites and treated 60,000 tons of fuel-contaminated soil at those sites, using low-temperature thermal volatilization. The base also installed and sampled off-base background wells to establish background levels and to determine whether base groundwater is contaminated with metals. All remaining sites at the installation were ranked according to the Relative Risk Site Evaluation process.

The village of Rantoul, Illinois, Aviation and Development Group, completed a reuse plan for the facility. As a result of the Local Redevelopment Authority's efforts, an operating civilian airport has been established on former property of the installation, and all aviation support facilities have been leased, with the exception of Buildings 68 and 850.

In FY96, a Remedial Investigation (RI) Report for 11 sites was submitted to the state of Illinois. Further investigation is required for those sites because the RI and the RI Report were determined to be flawed. Also in FY96, the installation initiated a groundwater extraction and treatment system at Building 700, a former UST site. Several parcels within Operable Unit (OU) 1 were designated as suitable for transfer. Since low concentrations of metal were shown in the resampling of three wells, transfer of the OU1 properties by deed proceeded. Cleanup operations continue at OU2.

The installation began a Remedial Design for the TCE spill and fire training sites. In addition, planning began at former UST sites for a Removal Action for soil still contaminated with fuel. Bioremediation and intrinsic bioremediation Treatability Studies for the Building 952 area spill site were designed and implemented.

The installation formed a BRAC cleanup team (BCT) and a restoration advisory board (RAB) in FY94. RAB meetings cover the progress of the ongoing RIs and address concerns of community members. Throughout FY96, RAB members were kept informed of the environmental studies and cleanup operations on the base.

FY97 Restoration Progress

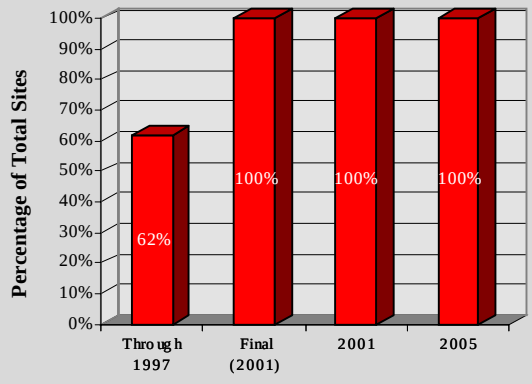
Two early actions and a site cleanup were completed. In addition, the Feasibility Studies for natural attenuation at the Building 952 area continued. The installation contracted with an engineering and research firm to expedite cleanup. The BCT continued to meet monthly and reviewed and updated the BRAC Cleanup Plan. The BCT also developed a long-term schedule for cleanup, monitored progress on current projects, and oversaw the contracting of upcoming projects.

Some activities scheduled for completion in FY97 were delayed because more-detailed studies were required at several sites. Removal Actions are ongoing.

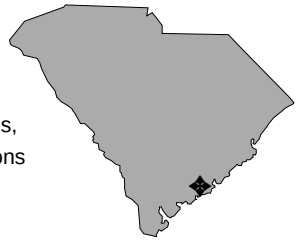
Plan of Action

- Continue Removal Actions at Fire Training Area 2 and Buildings 916, 922, 927, 932, and 975/995 in FY98
- Submit FSP for Landfill 14 in FY98
- Complete area survey and geophysics for landfills in FY98
- Complete CPT and soil gas for landfills in FY98
- Complete latest version of Environmental Baseline Survey in FY98
- Complete RI activities at 11 sites in FY99

Sites Achieving RIP or RC Per Fiscal Year



Size: 4,678 acres
Mission: Repair, maintain, and overhaul Navy ships
HRS Score: NA
IAG Status: None
Contaminants: Asbestos, cyanide, decontaminating agents, heavy metals, paints, PCBs, pesticides, petroleum/oil/lubricants, solvents, and petroleum hydrocarbons
Media Affected: Groundwater, sediment, and soil
Funding to Date: $14.6 million
Estimated Cost to Completion (Completion Year): $27.3 million (FY2003)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2001



Charleston, South Carolina

Restoration Background

The Charleston Naval Complex houses five major naval commands (the Naval Shipyard [NSY], the Naval Station [NS], the Naval Fleet and Industrial Supply Center [FISC], the Fleet and Mine Warfare Training Center [FMWTC], and the Naval Reserve Center [NRC]), as well as several small organizations. In July 1993, the BRAC Commission recommended closure of the property and the majority of the commands. Operational closure of the complex was completed on April 1, 1996.

The primary sites of concern at the installation are areas that were used as landfills or disposal pits without controls for runoff and leachate. The complex was divided into 12 zones. There are 115 RCRA solid waste management units (SWMU) and 161 underground storage tanks (UST) at the complex. Two UST sites, one at FMWTC and the other at NRC, are Response Complete. These sites are located in 10 of 12 zones. The first 10 zones also include hundreds of areas of concern (AOC) undergoing confirmatory sampling. Zones J and L, which are currently in the RCRA Facility Investigation (RFI) stage, contain the waterside areas and the sanitary sewer system, respectively, both of which may include contamination from any site or AOC. All cleanup activities are conducted as RCRA corrective actions. Tank removals are being accomplished under the BRAC program and not necessarily under the UST program. The UST program includes sites at which soil or groundwater contamination has been identified. The installation has completed initial site characterizations for all UST sites; cleanup has been completed at two UST sites and is under way at two others.

The BRAC cleanup team (BCT), formed in FY94, has been instrumental in accelerating the cleanup process by providing an on-site decision-making team. Two reuse groups have been formed, one representing the local community and the other a state agency. A land reuse plan was developed and approved, and transfers of property to other federal agencies, as well as leases to private businesses, were completed for much of the installation property.

The installation converted its technical review committee (TRC) to a restoration advisory board (RAB) in FY94. The 22 members of the RAB meet bimonthly. The community relations plan has been updated to include all SWMUs.

During FY96, the BCT completed a BRAC Business Plan, in lieu of the BRAC Cleanup Plan, to outline the environmental restoration status, strategies, and goals. The installation also completed an Environmental Baseline Survey (EBS). An Environmental Impact Statement was completed and a Record of Decision signed. The RCRA Facility Assessment (RFA) was completed for three SWMUs. One Interim Remedial Action (IRA) was completed and two more were initiated at one UST site at the NS. A corrective action plan (CAP) was completed at another UST site at the NS. Fifty-four tanks were removed during the fiscal year.

FY97 Restoration Progress

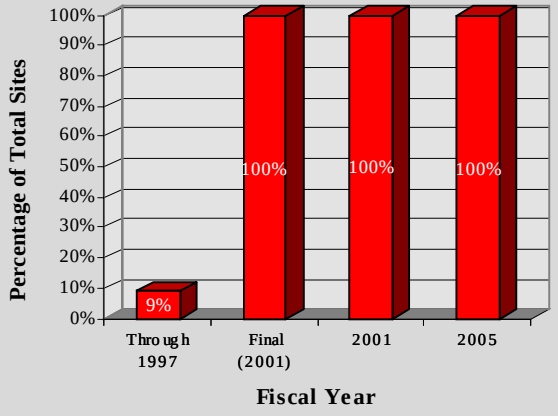
RFAs were completed for 64 SWMUs at the installation. Corrective measures studies (CMS) and RFIs were completed for 60 SWMUs, and 12 corrective measures designs (CMD) were completed. Corrective measures implementation (CMI) was completed for seven sites. Site Assessments, a CAP, and CMDs were completed for three USTs. In addition, 50 tanks were removed.

To expedite site characterization, a geoprobe was used to collect soil and groundwater samples. Site management was improved through recycling of waste oil and scrap metals and disposal of nonhazardous waste materials recovered from interim removal sites. The BCT conducted monthly meetings at which progress of the environmental investigation was addressed and consensus decisions made with regulatory agencies. The BRAC Business Plan and the EBS were updated. At RAB meetings, the community was given the opportunity to rank remedy alternatives presented in the CMS.

Plan of Action

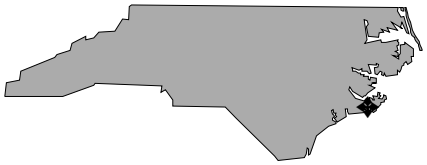
- In FY98, complete CMDs for 35 SWMUs, RFIs and CMSs for 53 SWMUs, CMIs for 10 SWMUs, IRAs for 4 SWMUs, four IRAs at 2 UST sites, and a CAP for 1 UST site
- Remove the final 37 tanks in FY98
- Implement iron curtain technology for chlorinated solvent cleanup in FY98
- Update BRAC Business Plan in FY98

Sites Achieving RIP or RC Per Fiscal Year



Cherry Point Marine Corps Air Station NPL

Size: 27,715 acres
Mission: Maintain and operate support facilities; provide services and materials for marine aircraft
HRS Score: 70.71; placed on NPL in December 1994
IAG Status: Federal Facility Agreement under negotiation
Contaminants: PCBs, petroleum hydrocarbons, and solvents
Media Affected: Groundwater and soil
Funding to Date: $41.0 million
Estimated Cost to Completion (Completion Year): $84.0 million (FY2020)
Final Remedy in Place or Response Complete Date: FY2012



Cherry Point, North Carolina

Restoration Background

The station conducted an Initial Assessment Study in FY83 that identified 32 sites. A RCRA Facility Assessment performed in FY88 identified 114 solid waste management units. The installation and EPA negotiated a Consent Order in FY90 in which the Navy and EPA agreed to perform additional investigations at 32 of the 114 sites.

The installation characterized 22 underground storage tank (UST) sites between FY91 and FY95 and completed corrective action plans (CAP) for 2 UST sites in FY93 and 1 UST site in FY94. During FY95, a corrective measures study was initiated for five sites and completed for one site. The installation completed corrective measures implementation for two sites and a Time-Critical Removal Action for one site. Characterizations were completed for three UST sites, and a CAP was completed for one UST site.

The technical review committee, established in FY91, meets once a year. Two information repositories were established in FY93, one at the Havelock Public Library and the other at the installation's library. The installation's restoration advisory board (RAB), established in FY95, meets quarterly. A community relations plan also was completed in FY95. The installation has established a formal partnering process with EPA Region 4 and the state of North Carolina. This process helps reduce review times, supports a streamlined site management plan, and accelerates cleanup.

During FY96, the installation completed Remedial Investigation/ Feasibility Studies (RI/FS) for two sites and nine Proposed Remedial Action Plans (PRAP). CAPs were completed at six UST sites, and designs were completed at three UST sites. A Baseline Risk Assessment is ongoing for all sites.

FY97 Restoration Progress

The RI/FS was initiated for two sites and completed for four additional sites. PRAPs were prepared for two sites and completed at three additional sites. Remedial Action (RA) was initiated for eight sites and completed for four additional sites. An Engineering Evaluation and Cost Analysis was completed for one site. Three Records of Decision (ROD) were completed, but signatures are pending because of a deed restriction.

The following innovative technologies were implemented at the installation: a horizontally drilled product slurping system installed beneath an aircraft hangar and natural attenuation for a 40-acre contaminated landfill. A facilitywide process for developing and maintaining the quality assurance plan (QAP), site background data and decision documents has been established to streamline fieldwork.

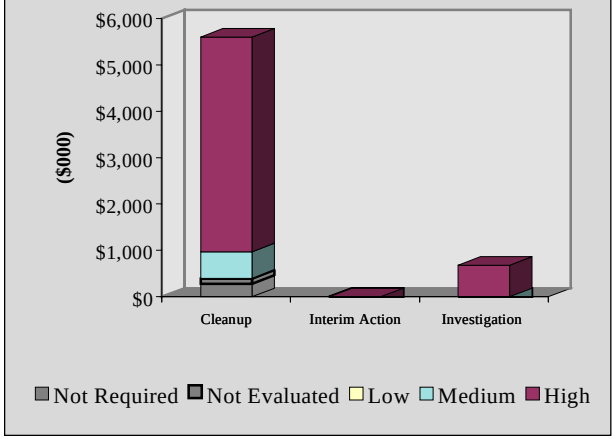
An air sparging/soil vapor extraction system to remediate groundwater and prevent migration of contaminants to surface water is planned.

Some activities scheduled for completion in FY97 were delayed because the UST program is using the CAPs for the designs.

Plan of Action

- Initiate RODs for two sites and sign RODs for six sites in FY98
- Complete Interim Remedial Actions (IRA) for nine sites in FY98
- Complete the RI/FS and PRAP and sign the ROD for two sites in FY98
- Initiate the IRA and Remedial Design for one site in FY98
- Initiate the RA for one site in FY98
- Complete Corrective Measures Designs for three sites in FY98
- Complete the stationwide QAP, decision document, and site description document in FY98
- In FY98, create a 3-month calendar-type plan that includes all submissions, reviews, meetings, and phone conversations to help manage workload for all team members in FY98
- Hold RAB training and develop a newsletter in FY98

FY98 Funding by Phase and Relative Risk



Chicago O'Hare IAP Air Reserve Station — BRAC 1993

Size: 352 acres
Mission: House 126th Air Refueling Wing (Illinois Air National Guard) and Defense Logistics Agency; formerly housed 928th Airlift Wing (Air Force Reserve)
HRS Score: NA
IAG Status: None
Contaminants: VOCs, SVOCs, PNAs, petroleum hydrocarbons, metals, and low-level radioactive waste
Media Affected: Groundwater and soil
Funding to Date: $3.6 million
Estimated Cost to Completion (Completion Year): $0.1 million (FY2009)
Final Remedy in Place or Response Complete Date: FY2004

Chicago, Illinois

Restoration Background

Chicago O'Hare International Airport Air Reserve Station began operations in 1942 as an aircraft assembly plant. The plant was deactivated in 1945, and the Air Force Reserve (AFRES) and the Air National Guard (ANG) began flying activities in 1946, and 1954, respectively.

The 1993 BRAC Commission recommended closure of this station contingent upon receipt of funding from the city of Chicago. In late 1996, the Air Force and the city of Chicago signed a purchase agreement, which began official closure activities. Accordingly, the 928th Airlift Wing (AFRES) was deactivated on June 30, 1997, leaving the 126th Air Refueling Wing (ANG) as host for the station and its environmental programs. Most of the 126th are expected to relocate to Scott AFB in Illinois. The station will be fully closed by July 1999.

The Air Force and the city of Chicago are working closely to coordinate the environmental investigations and cleanup with property transfers. By the closure date, it is anticipated that the entire station will have been conveyed to the city, either by lease or deed. The city plans to use the property for airport and airport-related purposes, further enhancing the operations and the commercial activities at Chicago O'Hare International Airport.

Environmental cleanup studies at the station began in 1983. To date, 14 Installation Restoration Program (IRP) sites have been identified. Site types include underground storage tanks (UST), landfills, fuel spills, aboveground storage tanks (AST), a fire training area, and a low-level radioactive waste disposal area. Primary contaminants are petroleum hydrocarbons, metals, PNAs, volatile organic compounds (VOC), and semivolatile organic compounds (SVOC), which have been released into soil and groundwater.

Interim Remedial Actions to date have included removal of 21 USTs, contaminated soil, and low-level radioactive waste. Eleven ASTs also have been closed. Remedial Actions include removal of eight ASTs and partial on-site remediation of the South petroleum/oil/lubricant (POL) facility. Of the other 13 IRP sites, 10 will be recommended for no further action (NFA), 1 is planned for long-term monitoring (LTM), and 2 will require additional testing.

FY97 Restoration Progress

A Base Closure and Transition Team (BCTT) was formed in early FY97. A BCTT is similar to a BRAC cleanup team (BCT) in that it is composed of the BRAC environmental coordinator, the Illinois EPA, and EPA. The Air Force has established a strong partnership with the city of Chicago and the other stakeholders. State and federal regulatory agencies have agreed to help the Air Force meet the city's schedule by means of the fast-track process.

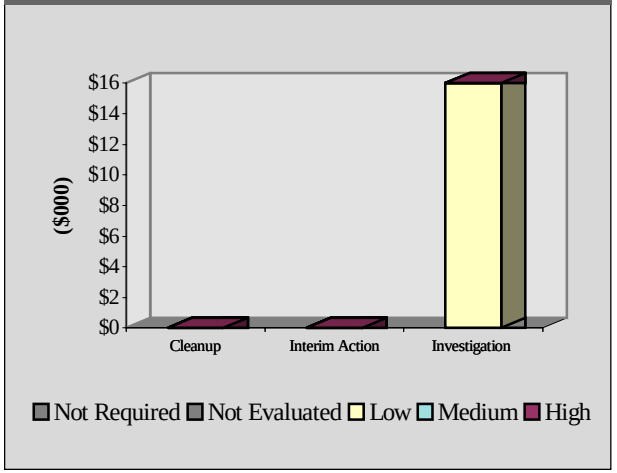
A restoration advisory board (RAB) also was formed in FY97 and met in June and July. The RAB has shown interest in all aspects of the investigation, cleanup, and long-term protection activities.

A stationwide Phase I Environmental Baseline Survey (EBS-PI) was completed in January 1997. The EBS-PI identified approximately 228 acres as CERFA-clean. EBS Phase II supplements are being prepared as investigations and cleanup occur and property transactions are developed.

Plan of Action

- Complete parcel-specific EBS for Parcels 2 and 3A, and issue finding of suitability to lease (FOSL) for property in FY98
- Complete Expanded Site Investigation (ESI) for Parcels 2 and 3A in FY98
- Complete groundwater classification for entire facility in FY98
- In FY98, close out 10 IRP sites and develop decision documents requesting NFA
- In FY98, develop decision document for one IRP site (landfill, LF-01) requesting LTM
- Complete testing to determine final closure process for South POL area (two IRP Sites, SS-12 and ST-14) in FY98
- Complete parcel-specific EBS and FOSL (or finding of suitability to transfer) for Parcel 3 in FY98
- In FY98, begin ESI, if needed
- In FY98, revise decision documents for NFA at ST-02 and FT-03 and resubmit them to regulatory agencies

FY98 Funding By Phase and Relative Risk



Concord Naval Weapons Station NPL

Size: 13,023 acres
Mission: Ship, receive, inspect, and classify munitions (tidal area); serve as munitions storage and weapons maintenance, inspection, and testing facility (inland area)
HRS Score: 50.00; placed on NPL in December 1994
IAG Status: Federal Facility Site Remediation Agreement signed in September 1992
Contaminants: Heavy metals and petroleum hydrocarbons
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $41.9 million
Estimated Cost to Completion (Completion Year): $34.3 million (FY2011)
Final Remedy in Place or Response Complete Date: FY2008

Concord, California

Restoration Background

Since FY83, environmental investigations have identified 58 sites at Concord Naval Weapons Station. Past operations, such as improper disposal of paints and solvents, spent ordnance, treated wood, and household and industrial waste; open burning of munitions; and spills or leaks from fuel storage tanks, have contributed to contamination. The installation was placed on the National Priorities List (NPL) in December 1994, primarily because of surface water and sediment contamination of tidal and litigation-area sites. These sites contain sensitive habitat for threatened and endangered species and are also interconnected to Suisun Bay.

In FY86, the installation completed a Remedial Investigation and Feasibility Study (RI/FS) for six litigation-area sites and an RI for one other site. In FY88, a revised final RI/FS was completed for seven litigation-area sites. The next year, a Record of Decision (ROD) was signed for seven litigation-area sites. In FY91, the Navy entered into seven consent decrees with the owners of adjacent properties and recovered costs for cleanup. A Remedial Design was completed for seven litigation-area sites in FY92. The following year, Site Inspections (SI) were completed for four tidal area sites, five inland sites, and six other sites. In addition, a RI was initiated for the four tidal area and five inland sites. In FY94, the installation completed a Remedial Action (RA) for four litigation-area sites and initiated long-term monitoring (LTM) for the sites.

A RCRA Facility Assessment was completed for 49 solid waste management units (SWMU) in FY92; 24 of the SWMUs were proposed for RCRA Corrective Action. In FY94, the installation initiated a RCRA Facility Assessment confirmation study for the 24 SWMUs.

In FY92, three tanks were removed from an underground storage tank (UST) site. In FY93, an initial site characterization was completed for one UST site. During FY95, three abandoned wells were closed and sealed at one inland site.

The installation completed its community relations plan (CRP) in FY89 and updated it in FY95. An information repository and an administrative record were established in FY89. The installation formed a technical review committee in FY90 and converted it to a restoration advisory board (RAB) in FY95. The RAB has 10 active members. In FY95, the installation distributed environmental and RAB fact sheets to the local community and conducted two site tours for the public.

During FY96, the installation's RAB met monthly and participated in two site tours. A final CRP was completed. The installation completed an RA for three litigation-area sites. The first-year LTM was completed and the second-year LTM was initiated for seven litigation-area sites. The installation also initiated corrective actions for 3 of the 24 SWMUs under investigation.

FY97 Restoration Progress

A Phase II RI was initiated for one inland site. The installation completed a Qualitative Ecological Risk Assessment and initiated the third-year LTM for seven litigation-area sites. The installation initiated SIs for 24 SWMUs and completed corrective actions for 3 SWMUs. Three corrective action interim measures also were performed.

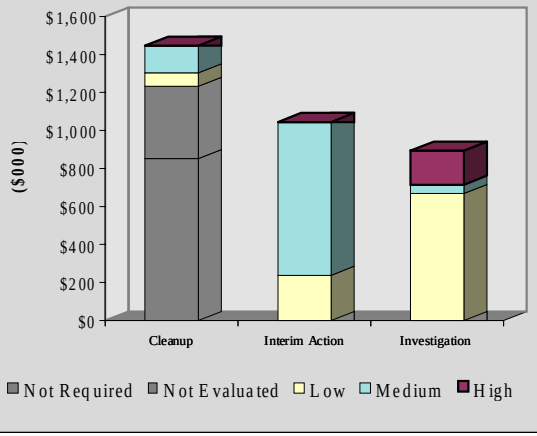
During preparation of the Ecological Risk Assessment Report, working meetings were held with regulatory agencies to obtain input on potential issues. The RAB also reviewed and commented on five draft reports.

Extension of the regulatory agency review period delayed completion of some activities scheduled for FY97. Other activities were delayed by the need for additional sampling. In addition, the work plan preparation associated with changing one action from an RA to a risk-based corrective action delayed cleanup.

Plan of Action

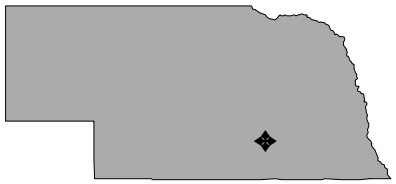
- Complete RIs and initiate FSs for four tidal area sites in FY98
- Complete RIs for five inland sites in FY98
- Prepare an Engineering Evaluation and Cost Analysis and an Action Memorandum for one tidal area site in FY98
- Complete the Removal Action at one inland site in FY98
- Complete Phase II RI and initiate FS for one inland site in FY98
- Complete the FS and initiate preparation of a Proposed Plan and a ROD for one tidal area site in FY98
- Complete proposed plans and sign RODs for four inland sites in FY98
- Complete the third-year LTM and initiate fourth-year LTM for seven litigation-area sites in FY98
- Complete the Removal Action for one tidal area site in FY98
- Install landfill caps in FY00

FY98 Funding by Phase and Relative Risk



Cornhusker Army Ammunition Plant NPL

Size: 11,936 acres
Mission: Manufactured ammunition
HRS Score: 51.13; placed on NPL in July 1987
IAG Status: IAG signed in 1990
Contaminants: Explosives and heavy metals
Media Affected: Groundwater and soil
Funding to Date: $42.8 million
Estimated Cost to Completion (Completion Year): $43.8 million (FY2033)
Final Remedy in Place or Response Complete Date: FY2014



Hall County, Nebraska

Restoration Background

Cornhusker Army Ammunition Plant is a former ammunition manufacturing facility, which used numerous sumps, cesspools, and leaching pits in the manufacturing process. Those areas, as well as disposal pits, old landfills, and open burning areas, contributed to the environmental problems at the installation, resulting in the installation's listing on the National Priorities List (NPL).

An Initial Assessment Study completed in FY80 identified 65 sites at the plant. In FY83, the Army identified an explosives-contaminated groundwater plume that had migrated off site. Unlined leaching pits, cesspools, and sumps were the primary sources of contamination. The off-site contamination affected more than 250 private residences in Hall County and nearby Grand Island. In FY86, the Army removed and incinerated about 40,000 tons of contaminated soil from cesspools and leaching pits, eliminating almost 95 percent of the sources of contamination at the installation. In FY86 and FY95, the Army provided funds to extend the Hall County municipal water distribution system to affected Grand Island residences. In FY94, the Army conducted Interim Remedial Actions to remove 5,000 tons of contaminated soil and completed an interim Record of Decision (ROD) for cleanup of groundwater contamination.

The Army also implemented innovative measures to reduce restoration costs. It used temporary well points instead of full-scale cased wells and used innovative chemical screening techniques to identify explosive materials in groundwater. Such techniques reduced analysis costs for the project to approximately one-sixth the cost of typical wet-chemical analyses.

In FY95, the Army conducted a successful pilot-scale study of an innovative treatment technology that uses a peroxone system to break down explosive compounds. The study was successful enough to warrant a field-scale study. Also in FY95, the Army completed fieldwork for the final Remedial Investigation (RI) Report.

In FY96, the Army submitted the final RI Report and designated six sites (Operable Unit [OU] 2) as requiring no further action. A Site Inspection was also submitted for contamination at former locations of underground storage tanks. The Army submitted the 90 percent design for the groundwater treatment facility at OU1. It also issued the explanation of significant differences for the OU1 ROD and held public comment periods to explain the change in the location of the discharge point.

The community formed a Local Redevelopment Authority (LRA) in FY89. The LRA includes local citizens, farmers, politicians, representatives of industry, and installation personnel.

In FY96, the Army solicited comments from members of the community to determine the level of interest in forming a restoration advisory board (RAB). Because of a lack of public interest, the RAB was not established.

FY97 Restoration Progress

A change to the OU1 ROD initiated phased treatment. This change accelerated fieldwork on hot spots and moved the discharge location on site, with community consent, possibly saving $5 million to $6 million. Detailed briefings of regulatory agencies expedited document review.

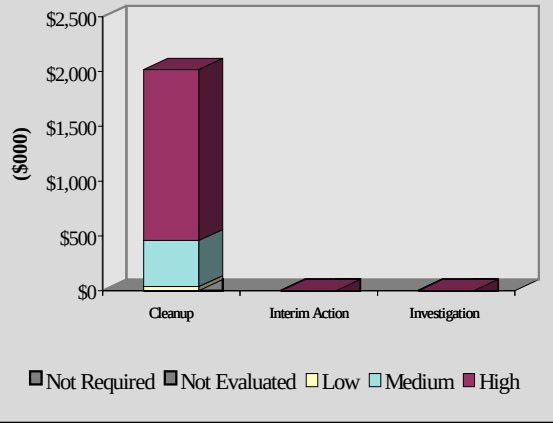
The U.S. Army Corps of Engineers completed changes in the design of the OU1 treatment system after discussions with the public and regulatory agencies. In addition, the Remedial Design was completed and construction was initiated for the groundwater extraction and treatment system at OU1. A draft final ROD, requiring no further action, was submitted for signature for sites at OU2.

Several FY97 goals were not met because of increased regulatory review times, but projects are back on track.

Plan of Action

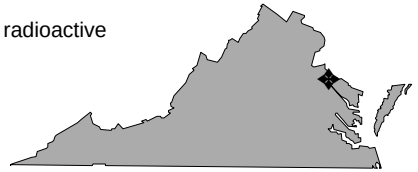
- Submit the final Feasibility Study, Proposed Plan, and ROD for OU3 in FY98
- Submit the final Proposed Plan and ROD in FY98 for sites at OU2 designated as requiring no further action
- Begin NPL delisting procedures in FY98 for parcels requiring no further action
- In FY99, begin a final Removal Action for contaminated soil

FY98 Funding by Phase and Relative Risk



Dahlgren Naval Surface Warfare Center NPL

Size: 2,677 acres main site; 1,614 acres experimental explosive area
Mission: Proof and test ordnance
HRS Score: 50.26; placed on NPL in October 1992
IAG Status: Federal Facility Agreement signed in September 1994
Contaminants: Cleaning solvents, explosive residues, heavy metals, low-level radioactive materials, mercury, PCBs, and pesticides
Media Affected: Groundwater, surface water and sediment, and soil
Funding to Date: $18.9 million
Estimated Cost to Completion (Completion Year): $27.1 million (FY2016)
Final Remedy in Place or Response Complete Date: FY2010



Dahlgren, Virginia

Restoration Background

Dahlgren Naval Surface Warfare Center was placed on the National Priorities List (NPL) because of the potential migration of releases from three contaminated sites that could affect the Potomac River, Gambo Creek, associated wetlands, and local groundwater aquifers that are used for drinking water. Ordnance testing operations at the installation have contributed to the environmental contamination. Site types at the installation include former landfills, former ordnance burn and disposal areas, underground storage tanks, operating ordnance ranges, and operating ordnance research and development areas. Releases from the sites have contaminated soil at the installation. All 74 identified sites are being addressed under CERCLA.

An Initial Assessment Study identified 36 sites in FY83. In FY86, a confirmation study of six sites identified one additional site. In FY92, the installation completed a Removal Action involving sampling, excavation, and disposal of soil and concrete. During FY93, a RCRA Facility Assessment identified more than 100 solid waste management units (SWMU), and a visual site inspection identified 6 areas of concern (AOC) and 31 SWMUs that required further action. During FY94, the installation completed several Interim Remedial Actions, including removal of petroleum-contaminated soil from a site and an SWMU, placement of a cover at an SWMU, removal of a waste drum from an SWMU, and removal of materials and debris from another SWMU.

During FY95, an Engineering Evaluation and Cost Analysis and a Treatability Study were initiated at two sites contaminated with depleted uranium. The installation completed Site Inspections (SI) for 10 sites and a Removal Action to clean up polychlorinated biphenyl (PCB)–contaminated soil at 1 site.

In FY91, an information repository at the Smoot Memorial Library and an administrative record at the installation's general library were established. A community relations plan (CRP) was completed in FY92. The installation formed a technical review committee in FY92 and converted it to a restoration advisory board in FY95.

The installation holds frequent meetings and conference calls with representatives of EPA, the Virginia Department of Environmental Quality (VDEQ), and other regulatory agencies to set site priorities and incorporate comments into its site management plan (SMP). The SMP includes descriptions, locations, and cleanup schedules for all identified sites. Installation personnel also have worked closely with the U.S. Geological Survey to better define the hydrology and water quality at the installation.

In FY96, the installation updated the CRP, completed SIs for 10 sites, and initiated SIs for 6 sites and Remedial Investigations (RI) for 7. The installation also began a Treatability Study of bioremediation for pesticides in soil at the Pesticide Rinse Site and completed Phase I of the Ecological Risk Assessment of Gambo Creek and Phase I of the Ecological and Human Health Baseline Risk Assessment for eight sites. The installation closed out two SWMUs and two AOCs.

FY97 Restoration Progress

Removal Actions for four sites, Remedial Actions (RA) for two sites, and Phase II of the Ecological Risk Assessment of Gambo Creek were initiated. RAs and sampling for three Appendix B sites and RI for two sites were completed. The installation completed the Feasibility Study and initiated Remedial Design (RD) for two sites. Two Records of Decision (ROD) were signed for these sites. A bench-scale Treatability Study was completed and a bioaccumulation study initiated.

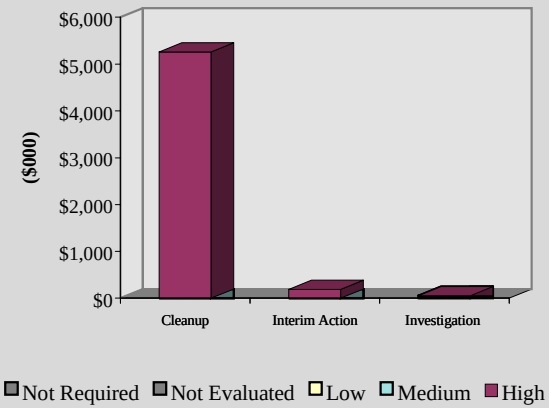
Accelerated fieldwork techniques such as a geoprobe, magnetometer, and immunoassay kits were used.

The Navy has initiated the partnering process with EPA and VDEQ. Contracting techniques for investigation and cleanup include cost plus award fee and fixed-price contracting.

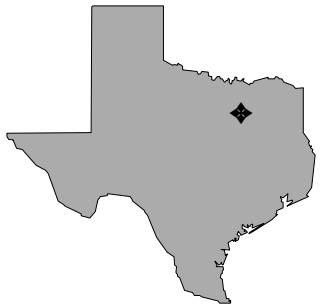
Plan of Action

- Complete Phase II of the Ecological Risk Assessment of Gambo Creek and Phase II of the Ecological and Human Health Baseline Risk Assessment for six sites in FY98
- Initiate RDs for seven sites, SIs for five sites, and Removal Actions for two sites in FY98
- Complete RIs for six sites in FY98
- Complete an RA for one site in FY98
- Complete sampling and Removal Actions for Appendix B sites in FY98
- Implement air sparging and soil vapor extraction technologies

FY98 Funding by Phase and Relative Risk



Size: 877 acres
Mission: Serve as a pilot training center
HRS Score: NA
IAG Status: None
Contaminants: Petroleum/oil/lubricants, solvents, heavy metals, and asbestos
Media Affected: Groundwater and soil
Funding to Date: $3.7 million
Estimated Cost to Completion (Completion Year): $76.8 million (FY2001)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2001



Dallas, Texas

Restoration Background

In July 1993, the BRAC Commission recommended closure of the Dallas Naval Air Station. Operations will be transferred to the Fort Worth Naval Air Station. The installation is scheduled to close in September 1998.

Dallas Naval Air Station was established in 1932 as Hensley Field of the U.S. Army Air Corps. A number of the industrial operations that supported its military mission contributed to contamination at the installation.

For investigation of environmental conditions, the installation was divided into six areas. Between FY85 and FY89, an Initial Assessment Study identified 12 sites. An additional site was later discovered, bringing the total to 13. The installation completed a confirmation study for six of these sites. Later, the installation completed a RCRA Facility Assessment, which identified 135 solid waste management units (SWMU) and 44 areas of concern (AOC).

During FY94, an Environmental Baseline Survey identified 118 AOCs. In addition, the installation formed a 14-member restoration advisory board (RAB), which meets quarterly. The RAB participated in training and presentations related to base closure activities. It also reviewed technical documents and fact sheets distributed to the public and established a bilingual information program. The installation established an information repository at the Grand Prairie Library.

A BRAC cleanup team (BCT) was formed in FY94. It includes representatives of the Navy, EPA, the state, regulators, and the local community and meets quarterly, as does a technical subcommittee. A BRAC Cleanup Plan (BCP) was completed in FY94 and updated in FY95.

During FY95, the installation initiated fieldwork for Categories B and C, initiated the design for removal of underground storage tanks (UST), and completed surveys of asbestos and polychlorinated biphenyls. Also in FY95, the Local Redevelopment Authority (LRA) was established. The LRA has adopted a land reuse plan that sets forth industrial aviation as the primary reuse for the installation.

During FY96, the installation's RAB initiated a small business program and seminar. A community relations plan was completed, and the installation revised its BCP so that it could serve as a BRAC Business Plan. The installation also completed a draft Interim RCRA Facility Investigation (RFI) Report for the area known as Category B and an Interim RFI Report for the area known as Category C. Ten SWMUs in Category C were determined to require additional sampling. The installation also remediated asbestos in all buildings and completed a background study of soil and a model finding of suitability to lease (FOSL).

FY97 Restoration Progress

The installation returned 106 acres to the city of Dallas by modifying the lease. Environmental investigations are continuing and will coexist with the new tenant. The EBST and the finding of suitability to transfer (FOST) for the transfer of Duncanville housing to the city of Duncanville were approved by the EPA and Texas Natural Resource Conservation Commission (TNRCC). The city plans to remove or demolish the houses to expand the city park. The Navy plans to revisit the site to remediate pesticides and lead-based paint. The installation also began to delineate the plume.

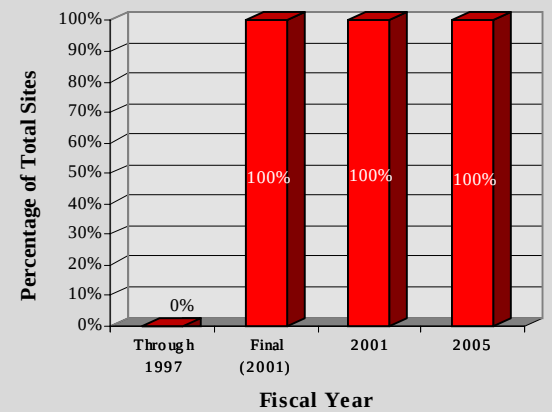
The BCP was updated. The BCT reviewed the draft Interim RFI Report, met with the redevelopment committee to explain environmental complexities, signed off on the EBST and the FOST for the Duncanville housing, and reviewed the budget. RAB meetings were open to the public and were announced in the local news media. Bilingual fact sheets were mailed out periodically.

The follow-on investigation decision process has taken longer than anticipated. The length of this process has delayed accomplishment of several activities that were scheduled for completion in FY97.

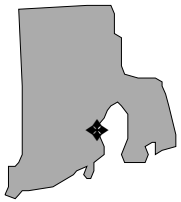
Plan of Action

- Complete transfer of the Duncanville housing area in FY98
- In FY98, meet with EPA Region 6 representatives and TNRCC to establish a Tier II partnership
- In FY99, complete Interim RFI Reports for the areas known as Categories D, F, A, and E
- Complete RFIs and corrective measures studies (CMS) for eight SWMUs in FY99
- Complete Corrective Measures Designs for 13 SWMUs in FY99
- Complete corrective measures implementation for five SWMUs in FY99
- Complete initial site characterization, a corrective action plan, Remedial Design, and Interim Remedial Action in FY99
- Initiate corrective action for one UST site in FY99
- Initiate Removal Actions to remove USTs in FY99
- Identify extent of plumes and releases in FY99
- Complete RFIs and CMSs for 21 SWMUs in FY00

Sites Achieving RIP or RC Per Fiscal Year



Size: 1,294 acres
Mission: Provided mobilization support to Naval Construction Forces
HRS Score: 34.52; placed on NPL in November 1989
IAG Status: Federal Facility Agreement signed in March 1992
Contaminants: Heavy metals, PCBs, pesticides, petroleum hydrocarbons, petroleum/oil/lubricants, and VOCs
Media Affected: Groundwater and soil
Funding to Date: $31.6 million
Estimated Cost to Completion (Completion Year): $32.1 million (FY1999)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1999



Davisville, Rhode Island

Restoration Background

In July 1991, the BRAC Commission recommended closure of this installation. Construction battalion training and mobilization activities were transferred to Naval Construction Battalion Center, Gulfport, Mississippi, and to Naval Construction Battalion Center, Port Hueneme, California. The installation was closed in April 1994.

Environmental studies conducted since FY84 have identified 25 sites, including landfills, solvent storage and disposal areas, transformer storage areas, spill areas, underground storage tanks (UST), and fire training areas. Major soil and groundwater contaminants include solvents, polychlorinated biphenyls (PCB), petroleum/oil/lubricants, and pesticides.

In FY91, the installation completed Interim Remedial Actions (IRA) for two PCB spill sites. In FY92, it completed a Phase I Remedial Investigation and Feasibility Study (RI/FS) for 10 sites. In FY93, the installation completed an IRA and an RI/FS and signed a Record of Decision (ROD) for two sites. Restoration continued in FY94, with a site inspection, a Phase II RI/FS, a Remedial Design, and an Ecological Risk Assessment.

In FY92, 56 USTs were removed from 7 sites, and an initial site characterization was completed. In FY95, the installation completed a corrective action plan for 7 UST sites and removed 27 other USTs. A ROD was signed for no further action (NFA) at two sites, a Removal Action was initiated, and another Removal Action was completed.

The technical review committee, formed in FY88, was converted to a restoration advisory board in FY94. The installation established an administrative record and an information repository in FY89.

The BRAC cleanup team (BCT), formed in FY94, meets regularly. A BRAC Cleanup Plan (BCP) and a land reuse plan were completed in FY94, and the BCP was updated in FY95. In FY94, the installation leased 70 acres to the Rhode Island Port Authority and transferred 374 acres to the Army.

In FY96, the BCT prepared a BRAC Business Plan and the installation updated its community relations plan. Twenty-four buildings and 100 acres were leased. The installation also completed five UST corrective actions, a Removal Action, and the closure of one site. The installation updated risk assessments and prepared Proposed Remedial Action Plans (PRAP) for a number of sites.

FY97 Restoration Progress

Cleanup of two sites was completed. Several innovative technologies were implemented. Accelerated fieldwork techniques included immunoassay field testing for confirmatory samples during excavation of soil contaminated with PCBs or total petroleum hydrocarbons (TPH).

To accelerate restoration, the Navy performed Environmental Baseline Survey (EBS) Phase II corrective actions, having the results approved by EPA and the Rhode Island Department of Environmental Management with a minimum of investigation. CLEAN and Remedial Action Contract (RAC) contractors formed a partnership with BCT to expedite the response to EBS Phase II corrective actions.

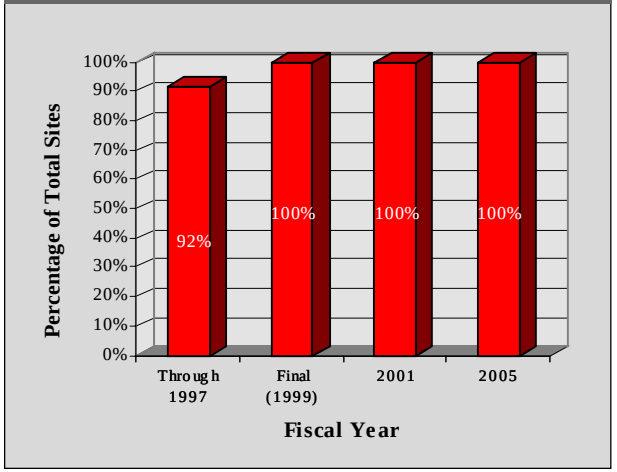
Regular BCT meetings and communication resolved problems and developed solutions. The BCT also dealt with numerous technical issues and decided to abandon groundwater operable units in favor of whole-site RODs to expedite property transfer.

Preparation of an NFA ROD, which was scheduled for FY97, was delayed pending review of the risk assessment for the NFA site. Other activities scheduled for FY97 were delayed by an investigation to determine the extent of a contaminant plume.

Plan of Action

- Update complete risk assessment, sign an NFA ROD for three sites, and complete basewide EBS corrective actions in FY98
- In FY98, prepare decision document to close out Study Area 15, and initiate Remedial Action (RA) for Site 9
- Remove PCB and total petroleum hydrocarbons (TPH) contamination by excavation and immunoassay field tests in FY98
- Dredge entrance channel to Allen Harbor as part of an RA for Site 9 in FY98
- In FY98, focus EBS Phase II actions on land with potential for economic reuse to expedite transfer
- Complete the RI/FS and the PRAP and sign the ROD for Site 7 in FY98 and for Site 3 in FY99
- Employ long-term monitoring at Site 7 in FY98 and at Site 3 in FY99

Sites Achieving RIP or RC Per Fiscal Year



Size: 642 acres
Mission: Store and distribute clothing, food, medical supplies, electronic equipment, petroleum products, and industrial chemicals
HRS Score: 58.06; placed on NPL in October 1992
IAG Status: Federal Facility Agreement signed in March 1995
Contaminants: Pentachlorophenol, PCBs, chlorinated solvents, petroleum/oil/lubricants, pesticides, heavy metals, and chemical warfare agents (suspected)
Media Affected: Groundwater and soil
Funding to Date: $28.3 million
Estimated Cost to Completion (Completion Year): $28.0 million (FY2005)
Final Remedy In Place or Response Complete Date for BRAC Sites: FY2005

Memphis, Tennessee

Restoration Background

In September 1995, the BRAC Commission recommended closure of this installation. Closure occurred in 1997.

Environmental studies at the installation, beginning in FY81, identified 75 CERCLA sites. Thirty-five of the sites required no further action. Between FY86 and FY89, 11 underground storage tanks (UST) were removed from the installation. All remaining CERCLA and UST program sites were divided into four operable units (OU). Remedial Investigation and Feasibility Study (RI/FS) activities were accomplished for 40 sites in FY90. In FY95, the installation completed the RI/FS work plans for all four OUs.

In FY85, an Interim Remedial Action (IRA) was completed to remove a pentachlorophenol (PCP) wood preservative treatment vat, a UST used for PCP storage, and contaminated soil in the area of the site. In FY91, the depot initiated an IRA to address groundwater contamination at Dunn Field. In FY96, the installation received agency approval for the IRA. As part of the IRA design, 16 new monitoring wells were installed outside of Dunn Field. A model was created at the U.S. Army Corps of Engineers Waterways Experiment Station to determine how to place extraction wells most effectively. After completing background sampling, the installation was able to determine its remediation goals.

A UST survey completed in FY93 identified 16 additional UST sites and outlined actions needed to ensure that USTs are maintained in compliance with applicable regulations. Two USTs were removed in FY93. From FY94 to FY95, all but two of the remaining USTs were removed or closed in place.

In FY94, a draft no-further-action report was prepared for 13 sites, and groundwater monitoring was performed to characterize contamination at the installation. On the basis of the results, a draft Proposed Plan was developed for the Dunn Field IRA. In FY95, the Interim Record of Decision for groundwater contamination at Dunn Field was completed.

In FY94, the installation developed a community relations plan. A restoration advisory board (RAB) also was formed, and the installation began distributing a quarterly newsletter describing the cleanup program.

In FY96, the installation completed fieldwork and document reviews for the Environmental Baseline Survey (EBS).

FY97 Restoration Progress

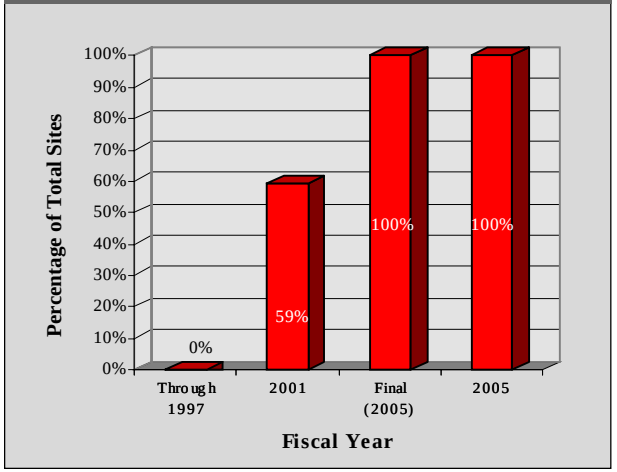
Complete mission closure of the installation was achieved in September 1997. RI/FS fieldwork for 32 sites was completed and the Remedial Design (RD) was initiated. In addition, monitoring wells were installed at Dunn Field. The installation completed the EBS; BRAC Cleanup Plan, version 1; and the Local Redevelopment Authority completed the land reuse plan.

There were delays in awarding the contract for the Chemical Warfare Material Survey, but the contract has now been awarded. Early removals and Remedial Actions (RA), which had been scheduled for FY97, cannot be performed until the RI fieldwork has been reviewed and the BRAC Cleanup Plan updated.

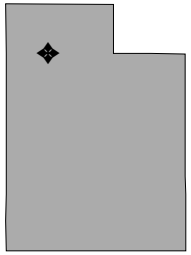
Plan of Action

- In FY98, perform a survey of chemical warfare material and investigate the possibility of its removal
- Begin RAs in FY98
- Begin the IRA at Dunn Field in FY98
- Complete RD in FY98
- Complete the FS in FY98

Sites Achieving RIP or RC Per Fiscal Year



Size: 1,129 acres
Mission: Store and distribute DoD commodities, including electronic equipment and textiles; package petroleum and industrial and commercial chemicals
HRS Score: 45.10; placed on NPL in July 1987
IAG Status: Federal Facility Agreement signed in November 1989
Contaminants: Solvents, paint and paint residues, petroleum/oil/lubricants, insecticides, chemical warfare agents, methyl bromide, metal-plating wastes and sludge, PCB-contaminated transformer oils, degreasers, acids and bases, and sand-blast residues
Media Affected: Groundwater and soil
Funding to Date: $40.8 million
Estimated Cost to Completion (Completion Year): $27.6 million (FY2015)
Final Remedy In Place or Response Complete Date for BRAC Sites: FY2002



Ogden, Utah

Restoration Background

In September 1995, the BRAC Commission recommended closure of this installation except for minimal essential land and facilities for a Reserve Component area.

A Preliminary Assessment conducted in FY80 identified 44 potentially contaminated sites at the installation. Twenty-two of the sites required further action. Prominent site types include oil-burning pits, disposal pits, a french drain system, and burial sites, which have contaminated groundwater and soil.

In FY90, a Federal Facility Agreement divided the sites into four operable units (OU) to address groundwater and soil contamination. From FY92 through FY95, the installation conducted Remedial Actions (RA) at all OUs. RAs included excavation and disposal of more than 24,000 tons of contaminated soil and debris and installation of wells and piping for groundwater extraction and treatment systems. To date, more than 130 groundwater monitoring wells and more than 100 extraction or injection wells have been installed for the air stripping towers. The installation used a photoisotropic neutron spectrometer to aid in identifying the contents of glass bottles excavated at OU3. In addition, a portable thermal desorption unit was used to ensure the complete removal of white phosphorus from the soil at OU4.

In FY95, groundwater treatment facilities operated at OUs 1, 2, and 4; a RCRA Facility Investigation (RFI) was undertaken; low-level contamination screening sites were investigated; and leaking aboveground storage tanks were investigated.

The installation maintained a close working relationship with state and federal regulatory agencies to improve the decision-making process and expedite cleanup. The technical review committee was converted to a restoration advisory board (RAB) in FY95. The RAB continues to address issues related to the cleanup process and helps to meet the needs of the community. A Local Redevelopment Authority (LRA) also was established during FY96.

The installation established a BRAC cleanup team (BCT) in FY95. During FY96, an installationwide Environmental Baseline Survey and a BRAC Cleanup Plan were completed. The installation also completed a draft land reuse plan and identified 441 acres as CERFA-uncontaminated.

FY97 Restoration Progress

The depot closed in September 1997. The installation implemented corrective measures for aboveground storage tanks and received agreement from regulatory agencies concerning the designation of 779 acres as CERFA-uncontaminated. In addition, the BCT participated in quarterly meetings, restoration document reviews, and training and the BCP and land reuse plans were updated.

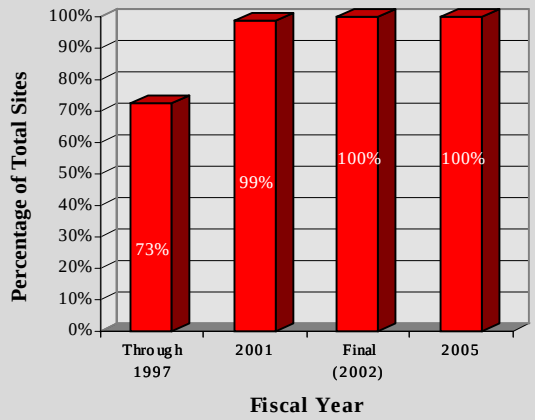
Phases I and II of the Remedial Facility Investigation were completed. Six sites were approved for no further action, leaving six sites for evaluation and cleanup. The Environmental Baseline Survey identified 30 additional sites that required further analysis. All but six were eventually approved for no further action.

Some activities scheduled for completion in FY97 were delayed because of contractor audit delay and long legal review.

Plan of Action

- Enhance groundwater treatment at OU4 in FY98
- Complete an Environmental Assessment for disposal of excess property and develop a master lease in FY98
- In FY98, approve a Cooperative Agreement with the Ogden LRA for management of the depot
- Convey the excess base property to the Ogden LRA in FY98
- Complete closure relative to the Part B permit in FY98

Sites Achieving RIP or RC Per Fiscal Year



Defense Distribution Depot San Joaquin, Sharpe Facility

Formerly Sharpe Army Depot **NPL**

Size: 724 acres
Mission: Receive, store, and distribute supplies, materials, and equipment
HRS Score: 42.24; placed on NPL in July 1987
IAG Status: IAG signed in March 1989
Contaminants: VOCs, heavy metals, petroleum/oil/lubricants, and pesticides
Media Affected: Groundwater and soil
Funding to Date: $43.4 million
Estimated Cost to Completion (Completion Year): $38.0 million (FY2015)
Final Remedy In Place or Response Complete Date: FY2000

Lathrop, California

Restoration Background

This facility began operation in 1941 as a supply and maintenance center. Activities conducted at the installation included overhauls, repairs, painting, paint stripping, metal finishing, and degreasing of aircraft and heavy equipment. Investigation and assessment identified 150 sites consisting of 8 groundwater plumes and 142 contaminated or potentially contaminated soil or building sites.

The Remedial Investigation and Feasibility Study (RI/FS) for groundwater was completed in FY91, and a Record of Decision (ROD) was signed in FY93. Per ROD requirements, the two interim ground-water extraction and air stripping systems, which have been in operation since FY87 and FY90, respectively, were upgraded to further treat and control the migration of trichloroethene (TCE) plumes in their associated areas. A third groundwater extraction and treatment system using air stripping and carbon adsorption was installed and went into operation in June 1995 to capture the depot's central area plume. The final groundwater system includes 46 extraction wells and 3 treatment plants, with a treatment capacity of more than 1,300 gallons per day.

Between FY85 and FY95, 67 underground storage tanks (UST) and sumps underwent removal and corrective actions, and 57 sites were closed. Twelve sites still require remediation or further documentation to achieve closure. Approximately 10,000 cubic yards of contaminated soil were removed and disposed of during this period.

A Removal Action for pesticide-contaminated soil was accomplished in 1995-1996, following approval of an Engineering Evaluation and Cost Analysis (EE/CA) and an Action Memorandum by the regulatory agencies. The Removal Action was conducted at the former pesticide mixing area. Approximately 500 cubic yards of pesticide-contaminated soil were removed.

An installationwide RI/FS and a risk assessment were completed in FY95, and the Proposed Plan was prepared and provided to the public for comment. The final ROD for Operable Unit (OU) 2, the sitewide remedy, was signed in February 1996.

FY97 Restoration Progress

During FY97, the installation started and completed a Removal Action for lead- and chromium-contaminated soil at Sharpe's former industrial waste treatment plant pond. The soil removal was completed in November 1996, and the final closure report was submitted in January 1997. A total of 4,165 tons of contaminated soil was removed and disposed of at an appropriately permitted site.

The installation also continued its efforts to raise interest within the surrounding community through a technical review committee and distributed fact sheets describing remediation efforts.

The pilot in situ bioventing project at former UST Site 17 continued. This technology will probably be implemented at several former UST sites. The groundwater long-term monitoring and operation and maintenance (O&M) at the sitewide groundwater treatment systems continued. In addition, the design of the lead/chromium Soil Removal Action stipulated in the OU2 ROD was completed. Several sites in the northern and southern portions of the installation will be remediated.

Four USTs were removed and two were closed. Two other sites will require further action. A study is in progress to determine the best in situ technologies for remediating UST sites where soil contamination has migrated beneath a building or other structure.

The installation completed design of the in situ vapor extraction remedy for the TCE-contaminated soil. This design will be implemented at five sites. In addition, analysis indicated that no further action would be required at 11 other sites, either because concentrations were below the threshold limit or because the contaminated mass was so low that it was not economically feasible to implement the vapor extraction technology at these sites.

Plan of Action

- In FY98, award contract for removal of lead- and chromium-contaminated soil per OU2 ROD requirements; Removal Action should be completed in FY98
- In FY98, award contract for the in situ TCE vapor extraction remedy per OU2 ROD requirement; remedy should be completed in 2 years
- Award long-term groundwater treatment system O&M contract by January 1998; continue operating system and continue monitoring groundwater to ensure compliance with ROD

FY98 Funding by Phase and Relative Risk